Work Orde February-21-13				*975	75*						Page 1
Revision ID:	D4148-041 Crosstube Lug	g Assembly, Fwd		Accept	*N900	<b>040</b>	100	)* s	Setup Sta	I	S1* S2*
	3/04/13	Start Qty: 2.00 Req'd Qty: 2.00	*2* *2*		Cust Item 1 Customer:	ID:					( ) /
Approvals:		an: <u>M</u> J	Date: <u>/3-02-25</u>			ate:		I	Run Sta Sto		R1* R2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr D4148 100 *100*	D	vision Nbr	Pick	K. +				2x	SŦ	D/3.	-3-18. Salozi
Small Fab Small Fab		<b>Memo</b> 1- Assembl	le as per dwg	0.00		ŧ.		4.			
*110 *110* QC Quality Control		QC5- Inspect part comp	oleteness to step on W/O	0.00	13			2			
*120 *120* Packaging Packaging		Identify as per dwg & S  Memo	Stock Location 5746	0.00				Дx			8-3-19

										DQA:	Date:	
NCR:	⁄es	/ No				WORK ORDER NON-	COI	y FORM	MANCE / UPDATE	•		
						₽		/ 		QA Closed:	Date:	
Vork Ord	or.					DISPOSITION			AGAINST D	EPARTMENT,	/PROCESS	
voik Oldi	-1.					Rework	٦		Skid-tube Crosstube	7	Water Jet	Engineering
Part I	No.					Scrap	1		Machining Small Fab	Pro	d. Eng. Coor.	Quality
						Use-as-is	]	Thern	noforming Finishing	Rec/Stor	re/Packaging	Other
NCR I	۷o.					Work Order Update			Large Fab Composite		Supplier	
D 1		1		1	Dosor	iption of work order update		nitial	Action	Sign &		1
Root Cause		Date	Step	Qty		or Non-conformance	1	ief Eng	Description	Date	Verification	QC Inspector
oc/Data		Date	эсер	Qty		of Non comormance	+:	iler eng	Description	- Dute	Vermedien	Qu mapasta.
uip/Tooling												
perator												
laterial												
etup								·				
ther												
ocess												
applier							1					
raining					ļ	·						
napproved												
							FAUL	T CATE	GORY			
Landi	ng (	Gear				General			_			
		Bending				Bend		Grain		Ovalized	L	Pressure/Forced
		Centre No	t Conce	ntric to	o/s	BOM/Route		Hardwa	are	Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged		Inspect	ion Incomplete	Part Incorre	ct	Weld
		Crushed/0	Crimped.			Burrs		Instruct	tions Incomplete/Unclear	Part Lost/M	issing	Wrong Stock Pulled
		Cuffs				Contamination		Mainte	enance	Part Moved		
		Heat Trea	t			Countersink		Mislabe	eled	Positioned \	Nrong	_
		Inspection	Strip in	Tube		Cut Too Short		Misread	d [	Power Loss/	'Surge	Other
		Ripples in	Bend		Γ	Drill Holes		Offset	_			
		Torque W	aves in E	Extrusio	n [	Drawing		Out of	Calibration			·
		Turning Se	equence			Finish		Out of !	Sequence			
		Wave/Tw	ist in Tul	be	Γ	Folio		Outside	e Dimensions			

<b>Work Ord</b> February-21-13				*975	75*							Page 2	
Item ID: Revision ID: Item Name:	D4148-041 Crosstube Lu	g Assembly, Fwd		Accept	*N900	<b>040</b>	100	)* s	Setup	Start Stop		S1* S2*	
Start Date: Required Date: Reference:	3/04/13 3/04/13	Start Qty: 2.00 Req'd Qty: 2.00	*2* *2*		Cust Item II Customer:	D:				,			
Approvals:	Process Pl	an:	Date:	Tooling: SPC (Y/N):		ite:	-	I	₹un	Start Stop		R1* R2*	
Sequence ID/ Work Center II 130 *130* QC Quality Control	D	Operation Description QC21- Final Inspection Memo	Work Order Release	Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accept Qty	Rej Qty		Reject Number	Insp. Stamp	

N13-03-19

										DQA:	Date	2:
NCR: Ye	es / No				WORK ORDER NON-C	CONF	ORN	MANCE / UPDAT		- QA Closed:	Date	2:
Work Order	r:				DISPOSITION	1			AGAINST DEP	ARTMENT/	PROCESS	
Part No	o				Rework Scrap Use-as-is Work Order Update	]     т	۱ herm	Machining S noforming	Crosstube  Small Fab  Finishing omposite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root	Date	Step	Qty		ption of work order update or Non-conformance	Init Chief		Action Description	i i	Sign & Date	Verification	QC Inspector
Cause	Date	step	Qty		or Non-comormance	Ciliei	LIIB	Description	1011	Date	Vermeation	QC IIISPECCOI
Doc/Data Equip/Tooling									]			
Operator	_											
Material	-						Ì					
Setup	-											
Other	•	ļ										
Process												
Supplier												
Training												
Unapproved								***************************************				
					F.	AULT (	CATE	GORY				
Landin	<del>-</del>				General				·		Г	
<u> </u>	Bending			<u> </u>	Bend		rain		<b>⊢</b>	Ovalized		Pressure/Forced
-	Centre No	ot Conce	ntric to	o/s	BOM/Route	$\vdash$	rdwa		<del></del>	Over/Under	- F	Temperature/Cure
-	Cracks				Broken/Damaged	$\blacksquare$		on Incomplete	-	Part Incorred	<b>⊢</b>	Weld
	Crushed/	Crimped		_	Burrs	-		ions Incomplete/Uncl		Part Lost/Mi	issing	Wrong Stock Pulled
-	Cuffs				Contamination	$\vdash$		nance	<b></b>	Part Moved		
-	Heat Trea				Countersink	$\mathbf{H}$	islabe		<b></b>	Positioned V		
-	Inspection		fube		Cut Too Short	$\vdash$	isread	1		Power Loss/	Surge [	Other
-	Ripples in			_	Drill Holes	$\mathbf{H}$	fset	Salik waki aw				<u>-</u>
-	Torque W			n	Drawing			Calibration				
-	Turning S			<u> </u>	Finish	-		Sequence	,			
ļ	Wave/Tw	ıst ın Tul	эe		Folio	1 10	utside	Dimensions				

## **Picklist Print**

February-21-13 2:41:26 PM

Work Order ID:

97575

Parent Item:

D4148-041

Parent Item Name:

Crosstube Lug Assembly, Fwd

**Start Date:** 3/04/13

Required Date: 3/04/13

Start Qty: 2.00

Required Qty: 2.00

**Comments:** 

IPP Rev:A 10.06.24 new issue DD verf:EC

IPP Rev:B 10.07.22 as per revB DD verf:JLM

IPP Rev:C 10.10.29 as per revC

DD\_verf:EC

IPP REV:D 11.03.02 AS PER DWG REV.D DD VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MS21043-3 Nut		Purchased	No			100	Each	3,309.0000	4	4	8	P	
				<b>Location</b>		Loc Qty	L	oc Code					
				FG		80							
					3691	80							
				GA		106							
					3899	106							
				ST315		3123							
					3899	196							
					4555	2927			1	IX			
MS21043-4 Nut		Purchased	No	u		100	Each	1,291.0000	1	66	013-	3_1	Ç.
Nut				<u>Location</u>		Loc Qty	1.	oc Code		20	<del>-   _  </del> -		(0
								oc Couc					
				FG	4602	36							
					4603	36							
				GA 12	1652	132			-				
•					1652	132							
				ST315	11.62	1123							
					1162	25							
					3021 3525	500 29							
					3900	569			-	<del></del>			

Page 1

NCR: Y	es / No				WORK ORDER NON-	CONF	ORN	MANCE / UPDATE		DQA: QA Closed:	Date	
Work Orde	r:				DISPOSITION			AG	AINST DE	PARTMENT/	PROCESS	
Part N NCR N	0				Rework Scrap Use-as-is Work Order Update	T	herm	Machining Sma	istube all Fab ishing posite	4	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root Cause	Date	Step	Qty		ption of work order update or Non-conformance	Init Chief	1	Action Description		Sign & Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved							All and All an					
					F	AULT (	CATE	GORY				
Landin	Bending Bend Bend Bend BoM/Route Broken/Damaged Crushed/Crimped Burrs Contamination Countersink Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion Turning Sequence General General Bend Bend Bom/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing Finish					Hallns Ins M M Of Ou	struct lainte islabe isread ffset ut of C	on Incomplete ions Incomplete/Unclear enance eled		Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct sissing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled  Other
	Wave/Tw				Folio	$\vdash$		Dimensions				

February-21-13 2:41:26 PM

Work Order ID: Parent Item:	97575 D4148-041			•		Staut :	Date: 3/04/13	Required Date: 3/04/13
Parent Item Name:	Crosstube Lug Assembly, Fwd						Qty: 2.00	Required Qty: 2.00
<b>D2690-6</b> Lanyard Assembly	Manufactured	No		100	Each	26.0000	1	2 B977274 1
			<b>Location</b>	Loc Qty		Loc Code		•
			GA	4				
			96592	4				
			ST014	22			·	
			94775	10				
			<u>95935                                  </u>	8			(X	<u> </u>
			96463	4				
03910-1 Crosstube Lug	Manufactured	No		100	Each	42.0000	1	$^{2}$ $\mathcal{S}_{0}$ .
.000.000 205			Location	Loc Qty		Loc Code	( <u>2002</u> )	<b>V</b>
			ST464	42				
			81474	2				
			87270	9				
			89772	1				· ———
			93755	30			<del>_</del>	X.
04091-1 Mounting Lug	Manufactured	No		100	Each	15.0000	1	2397517 SI
			Location	Loc Oty		Loc Code		
			ST144	15				
			93232	15			<del></del>	
<b>04148-1</b> Crosstube Lug Plate, Fw	Manufactured	No		100	Each	17.0000	2	SOB-3-18
			Location	Loc Oty		Loc Code		<u> </u>
			ST145	17				
			85753	2				
			92488	7			3	<b>\</b>
			92805	8				<b>_</b>

							DQA:	Date:	
NCR: Yes	s / No			WORK ORDER NON-C	CONFORM	MANCE / UPDATE	QA Closed:	Date:	
Work Order:	:			DISPOSITION	,		INST DEPARTMENT		
Part No				Rework Scrap Use-as-is Work Order Update	]   '	Machining Sma	shing Rec/Sto	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root	1			Description of work order update	Initial	Action	Sign &		
Cause	Date	Step	Qty	or Non-conformance	Chief Eng	Description	Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									

## **FAULT CATEGORY** General **Landing Gear** Grain Ovalized Pressure/Forced Bend Bending BOM/Route Temperature/Cure Over/Under tolerance Centre Not Concentric to O/S Hardware Broken/Damaged Inspection Incomplete Weld Part Incorrect Cracks Instructions Incomplete/Unclear Part Lost/Missing Wrong Stock Pulled Crushed/Crimped. Burrs Cuffs Maintenance Part Moved Contamination Heat Treat Countersink Mislabeled Positioned Wrong Other Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge Drill Holes Offset Ripples in Bend Out of Calibration Torque Waves in Extrusion Drawing Out of Sequence Turning Sequence Finish Folio Outside Dimensions Wave/Twist in Tube

Other
Process
Supplier
Training
Unapproved

February-21-13 2:41:27 PM

Work Order ID:	97575									
Parent Item:	D4148-041							Start	Date: 3/04/13	Required Date: 3/04/13
Parent Item Name:	Crosstube Lug Asse	mbly, Fwd						Start	<b>Qty:</b> 2.00	Required Qty: 2.00
<b>D4148-3</b> Stud Receiver, Lower		Manufactured	No			100	Each	10.0000	1	2
				Location	1	Loc Oty	<u>.</u>	Loc Code		
				ST145			0			
					93419		0		- dl	
04148-5		Manufactured	No			100	Each	10.0000	1	$^{2}$
yebolt Stud									(	
				Location	<u>n</u>	Loc Qt	<u>/</u>	Loc Code		•
				ST145			0			<del></del>
					94187		0		<del>-</del> 2	<del>k</del>
N3C12A		Purchased	No			100	Each	265.0000	2	4
olts										<u> </u>
				Location	<u>n</u>	Loc Ot	Ľ	Loc Code		
				GA			.5			
					122416		15			_
				ST351			50			<del></del>
					124561	2:			— 4	<u>X_</u>
N4C13A OLT		Purchased	No			100	Each	160.0000	3	6 80
				<u>Locatio</u>	<u>n</u>	Loc Qt	¥	Loc Code		
				ST356		1	00			- <del></del>
					123900	1	00			X
				ST516			50			
					124215		50			
1S17984-C413		Purchased	No			100	Each	41.0000	1	E0221
IN, QUICK RELEASI	3									A 12-2-1
				Locatio	<u>n</u>	Loc Qt	Y	Loc Code		
				ST332			2			
					118612		2			<u></u>
				ST508			39			
					124231		39		-9 <del>2</del>	

												DQA:	Da	te:	
NCR:	/es	/ No				WORK ORDER NON-O	O	NFORM	MANCE / UP	DATE		•			
												QA Closed:	Da	te:	`
						DISPOSITION				AGAINST [	DEI	PARTMENT/	PROCESS		
Work Orde	er:					Daway -	1		Claid tubo	Crosstube	$\neg$		Water Jet		Engineering
0	1					Rework	1		Skid-tube Machining	Small Fab	$\dashv$	Prov	d. Eng. Coor.	Н	Quality
Part I	VO.					Scrap Use-as-is	{		noforming	Finishing	$\dashv$		e/Packaging	$\vdash$	Other
NCR I	ılo.					Work Order Update	1	1	Large Fab	Composite	-	110075101	Supplier		
NCN	VO.					Work Order opdate	J		Earge ras	composite		İ	ouppiic.	ш	<b>!</b>
Root					Descri	ption of work order update	1	nitial	Ac	tion		Sign &			
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Desc	ription		Date	Verificatio	n	QC Inspector
Doc/Data											- 1				
Equip/Tooling											-		•		
Operator									:						
Material															
Setup											1			-	
Other											,				
Process															
Supplier														!	
Training															
Unapproved										· · · · · · · · · · · · · · · · · · ·					
						F	AUL	T CATE	GORY						
Landi	ng (	Gear				General				,		,			1
		Bending				Bend		Grain		ļ		Ovalized			Pressure/Forced
		Centre No	ot Conce	ntric to	o/s	BOM/Route		Hardwa	ire			Over/Under	tolerance	L	Temperature/Cure
		Cracks				Broken/Damaged		Inspect	ion Incomplete			Part Incorre	ct		Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/	'Unclear		Part Lost/Mi	issing		Wrong Stock Pulled

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing Finish

Folio

Part Moved

Positioned Wrong

Power Loss/Surge

Other

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Cuffs

Heat Treat

Inspection Strip in Tube

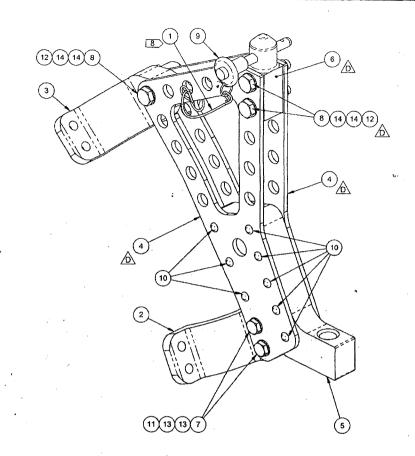
Torque Waves in Extrusion

February-21-13 2:41:27 PM

Work Order ID:	97575				
Parent Item:	D4148-041			<b>Start Date:</b> 3/04/13	Required Date: 3/04/13
Parent Item Name:	Crosstube Lug Assembly, Fwd			Start Qty: 2.00	Required Qty: 2.00
MS20615-4M18 Rivet	Purchased	No	100 Each	214.0000 8	1/24859 SP.
		<b>Location</b>	Loc Oty	Loc Code	
		GA	7	·	
		122452	7		
		ST312	207		
		123390	22		<u> </u>
		124331	185		
NAS1149C0332R	Purchased	No	100 Each	11,141.000 4	8 C <sub>2</sub> O
Washer					DT
		<b>Location</b>	Loc Oty	Loc Code	
		FP001	264		_ <del></del>
		123355	264		
		ST292	5877		
		123248	33		
		123759	5844	~	\$ <b>x</b>
		ST517	5000		
		124580	5000		
NAS1149C0432R	Purchased	No	100 Each	a 2,818.0000 <b>6</b>	15p./3-3-18.
Washer				· ====================================	
		<b>Location</b>	Loc Qty	Loc Code	
		GA	33		
		121255	33		
		ST292	2785		
		119124	6	<del></del>	
		122441	2779	/	JX

			DQA:	Date:
NCR:	Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE		
			· QA Closed:	Date:

NCR: Y	es / No				WORK ORDER NON-C	LONFOR	IVIAINCE / UP		QA Closed:	Date	<u>:</u>
Work Order:					DISPOSITION		AGAINST DEPARTMENT/PROCESS				
					Rework Scrap	]	Skid-tube Crosstube Machining Small Fab		Water Jet Prod. Eng. Coor.		Engineering Quality
Part No.					·	-   <sub></sub>	Thermoforming Finishing		Rec/Store/Packaging		Other
NCR No.					Use-as-is Work Order Update			Composite	Nec/3101	Supplier	
Root	Descri			Descri	iption of work order update	Initial	i		Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief En	g Desc	ription	Date	Verification	QC Inspector
Doc/Data								•		-	
Equip/Tooling											
Operator											
Material								•			
Setup							3	•			
Other							•	4.			
Process	_		·								
Supplier	_						İ		1		
Training											
Unapproved		<u> </u>	l						<u></u>		
			<del></del>			AULT CAT	EGORY	·			
Landin	ig Gear			_	General			<u> </u>	1	_	٦. ،
ļ.	Bending				Bend	<b></b>	Grain		Ovalized	<b>-</b>	Pressure/Forced
1	Centre Not Concentric to O/S Cracks Crushed/Crimped				BOM/Route	<b>—</b>	Hardware Inspection Incomplete Instructions Incomplete/Unclear		Over/Under tolerance Part Incorrect Part Lost/Missing		Temperature/Cure
-					Broken/Damaged	_					Weld
					Burrs	<b>├</b> ──					Wrong Stock Pulled
	Cuffs				Contamination	$\vdash$	Maintenance		Part Moved		•
Ļ	Heat Trea			<u> </u>	Countersink	Misla				Wrong	$\neg_{a}$
1		Inspection Strip in Tube			Cut Too Short	<del>  </del>	Misread		Power Loss/Surge		Other
Ļ	Ripples in Bend				Drill Holes		Offset		<del></del> ,		
1	Torque W			n	Drawing	<b>  </b>	Out of Calibration				
1	Turning Sequence				Finish	<b>⊢</b> ⊣	Out of Sequence				
	Wave/Twist in Tube				Folio	Outsid	Outside Dimensions				



	ITEM	QTY -041	P/N	DESCRIPTION
		X	D4148-041	FWD X-TUBE LUG ASSY
	1	1	D2690-6	LANYARD
	2	1	D3910-1	X-TUBE LUG
	3	1	D4091-1	MOUNTING LUG
_	4	2	D4148-1	FWD X-TUBE LUG PLATE
	5	1	D4148-3	STUD RECEIVER LOWER
-	6	1	D4148-5	EYEBOLT STUD
	7	2	AN3C12A	BOLT
	- 8	3	AN4C13A	BOLT
\D\	9	1	MS17984-C413	PIP PIN
	10	8	MS20615-4M18	RIVET
	11	2	MS21043C3	NUT
	12	3	MS21043C4	NUT
	13	4	NAS1149C0332R	WASHER
	14	6	NAS1149C0432R	WASHER

97575 MCJ 13-02-25

HOLE DIA CHANGED TO 0.252" (D8-3); HOLE DIA CHANGED TO 0.250" (C8-5); REPLACED QTY(2) AN3C12A, MS21043C3 AND QTY(4) MS2149C032R WITH QTY(2) AN3C13A, MS21043C4 AND QTY(4) NAS1149C0432R (D3-1,C4-2) 11.02.22 1,C4-2)

REDESIGNED D4148-1/-3 TO ADDRESS COMPATIBILITY
ISSUES WITH 0350-591 SHORT STEPS

REPLACED GTY(3) MS206:15-4M18 WITH GTY(2) EACH
AN3G12A, MS21043-3 AND GTY(4) NAS1149-C6332R
WASHER (ZN 03-1, B7-2 & B4-2); MS206:15-4M18 WAS
MS20615-4M02 (ZN 03-1, B7-2); Ø0.191 2 PL REPLACES
Ø0.129 3 PL (ZN 06-3); Ø0.129 7 PL WAS 10 PL (ZN A7-3);
Ø0.191 WAS 0.129 (ZN C6-5);
REASON: SEE TR-D350-607-2 REV. B. 10.10.12 мв мв 10.07.05 NEW ISSUE MB 10.06.18 REV. DESCRIPTION DATE

DESIGN	MB	DART AEROSPACE LTD					
DRAWN	SC	HAWKESBURY, ONTARIO, CANADA					
CHECKED	1	DRAWING NO.	REV. D				
MFG. APPR.	1021	D4148	SHEET 1 OF 5				
APPROVED	MAS	TITLE	SCALE				
DE APPR.	-#	FWD X-TUBE LUG ASSY	NTS				
DATE 11	02.22	COPYRIGHT © 2010 BY DART AEROSPACE LTD THE GOODWENT REPRYSTE AND CONFEDERAL AND CONFEDERAL ON THE COPYRISE CONFIDENCE THAT IT IS					

D4148-041 FWD X-TUBE LUG ASSY

D

8

NOTES:
1) MATERIAL: N/A
2) FINISH: NONE
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: N/A
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4148-041" PER DART QSI 044 6.1
7) WEIGHT: 3.67 lbs
8) ATTACH D2690-6 TO D4148-1 BY LOOPING AROUND A LIGHTENING HOLE FIRST AND THEN SECURE TO MS17984-C413

